TECHNICAL MEMORANDUM
HYDROGEOLOGIC INVESTIGATION
ATLANTIC IOWA GROUNDWATER PCE SITE
ATLANTIC, IOWA
NOVEMBER 2005

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REAC

Response Engineering and Analytical Contract

OFFICE OF EMERGENCY AND REMEDIAL RESPONSE

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DATE: November 3, 2005

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THROUGH: Parry Bhambra, REAC Operations Section Leader KDW for P.B.

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SUBJECT: HYDROGEOLOGIC INVESTIGATION
ATLANTIC IOWA GROUNDWATER PCE SITE, ATLANTIC, IOWA
WORK ASSIGNMENT 0-136: TECHNICAL MEMORANDUM

INTRODUCTION

This technical memorandum presents the results of a hydrogeologic investigation that was conducted at the Atlantic Iowa Groundwater PCE site during June 2005 by personnel from the Environmental Protection Agency/Environmental Response Team (EPA/ERT) and the Response Engineering and Analytical Contract (REAC). The primary purpose of this investigation was to define the nature and extent of groundwater contamination, upgradient of a municipal well, for assessing the applicability of installing a permeable reactive barrier (PRB) for groundwater treatment and protection.

Background

Atlantic, Iowa (IA) is a rural community in the northeastern portion of Cass County, located approximately 75 miles west of Des Moines, IA, and 45 miles northeast of Council Bluffs, IA (Figure 1).

The municipal water supply well field in Atlantic, IA has been impacted by tetrachloroethene (PCE) from a former dry cleaning site (Tetra Tech, 2004), which was located approximately 0.4 miles south of the well field. At the former source, approximately 40 feet of silt and clay overlies fine- to coarse-grained friable sandstone from which the well field withdraws the city's potable water supply. The silt and clay soils have been contaminated with PCE at depths too deep for physical removal and/or conventional remediation.

At present, the PCE contamination continues to migrate downward into the sandstone aquifer, and then travels horizontally within this aquifer to the city's municipal well field. The nearest well to the source area (Well No. 7) is presently being pumped on a continuous basis by the local water authority (Atlantic Municipal Utilities [AMU]) in order to provide hydraulic control and protect nine other municipal wells from contamination.

The ERT had suggested to EPA Region VII that a permeable reactive barrier (PRB), installed immediately upgradient of Well No. 7, could allow this well to be placed back on-line, thus adding to the city's water capacity and eliminating the need to discharge a significant volume of water to the city's publicly-owned treatment works (POTW). Additionally, Well No. 7 could still be used to hydraulically control plume migration to other wells within the municipal well field.

Conventional PRBs are typically installed via trenches and are limited in installation depth. A relatively new technology is being used to install PRBs via tightly spaced boreholes, which will allow the PRB to be installed at depths anticipated for this project (i.e., in excess of conventional trenching).

METHODOLOGY

Initial Site Visits

REAC personnel made an initial visit to the Atlantic site on March 14, 2005, accompanied by the ERT Work Assignment Manager (WAM) and Region VII On-Scene Coordinator (OSC). The purpose of this site visit was to select an area for a subsurface investigation to evaluate the depth and lateral extent of PCE contamination in groundwater. A meeting was also held with staff from AMU to inform them of future field activities and to obtain information on their well field.

On March 16, 2005, an additional site visit was made to Kelly Air Force Base in San Antonio, Texas where deep PRBs have been installed. Air Force personnel were consulted concerning resources and logistics required for design and installation of deep PRBs.

Data Collection and Evaluation

The following information on the Atlantic site was collected for review and evaluation:

- Municipal well data (obtained from AMU), which included drilling logs, well construction/design details, hydraulic information (e.g., specific capacity, static water levels), average pumping rates and schedules, water quality test results, and an aerial photo showing all well locations (Figure 2).

- Previous environmental reports pertaining to the former dry cleaning site (Ecology & Environment, 1988; Tetra Tech, 2004).

- Regional and local hydrogeologic data (Iowa DNR, 2003, 1996; USGS, 1992).

Based on the two site visits and a review of available data, a field investigation program was developed to collect and evaluate required subsurface data (i.e., both hydrogeologic and contaminant) for better assessing the applicability of installing a deep PRB at the site.

Field Investigation

Between June 14 and June 26, 2005, six boreholes were drilled at the site using a sonic drill rig. A drilling subcontractor (WDC Exploration & Wells, Clearwater, Minnesota) was retained via competitive bid for drilling the exploratory borings. The boreholes were roughly located along a planned centerline for the proposed PRB. Borehole depths ranged from 76 to 87.5 feet below ground surface (bgs); the cumulative total drilling was 477.5 feet. Subsurface materials were collected continuously (at 10-foot intervals) from ground surface to final depth at each borehole location, using 6-inch diameter (outer) and

4-inch diameter (inner) steel casings, to determine the subsurface lithology (logged by a REAC hydrogeologist).

Discrete groundwater samples were collected at various depths from the six exploratory borings (positioned upgradient of Well No. 7) to determine the nature and extent of PCE contamination in groundwater. Judgmental sampling was used to select individual groundwater samples from each borehole, based on subsurface lithology and depth. This type of sampling was used to identify and evaluate the distribution of contamination in groundwater immediately upgradient of Well No. 7.

At each borehole location, groundwater samples were collected at approximate 20-foot intervals beginning at approximately 20 to 25 feet bgs. Upon reaching the target sampling depths, the inner 4-inch drill casing was removed, leaving the outer 6-inch drill casing in the borehole. A 5-foot long, 2-inch diameter, flush-joint Schedule 40 polyvinyl chloride (PVC) well screen (10 slot) with attached PVC riser pipe was lowered through the casing to the bottom of the borehole. The 6-inch casing was then retracted approximately 3.5 feet (on average), exposing the surrounding formation materials. Next, a 2-inch submersible pump was lowered into the 2-inch PVC riser and suspended approximately 6- to 12-inches above the bottom. At each groundwater sampling point, the pump was operated for approximately 15 to 20 minutes (on average), prior to collecting a water sample. The average pumping rate was 5 gallons per minute (gpm) and ranged from approximately 1.5 to 6.5 gpm.

Discrete groundwater samples from each borehole location were delivered into three 40-milliliter (mL) glass vials that were filled completely to the top (allowing for no air space). Additionally, groundwater samples were collected from municipal well Nos. 6, 7, 10, 11, and 12 (i.e., from sampling ports located on the well heads) and also, the municipal treatment plant, which blends water from nine municipal wells. At these locations, the sampling valves were opened slightly and water was allowed to discharge for approximately 10 minutes prior to collection of grab samples. All groundwater samples were packed in coolers (cooled to 4° Celsius) and shipped under chain-of-custody to the REAC Laboratory in Edison, New Jersey for analysis of Target Compound List (TCL) VOCs. REAC Standard Operating Procedure (SOP) #1806 provided the requirements to analyze water samples for VOCs using gas chromatograph/mass spectrometry (GC/MS). The REAC SOP is based on EPA Method SW-846/8260B.

Upon completion of drilling at each location, the borehole was tremie-backfilled to ground surface with cement-bentonite grout.

Surveying

The horizontal coordinates of the borehole locations were surveyed using Trimble® global positioning system (GPS) survey equipment. All locations were referenced to the Universal Transverse Mercator (UTM) grid system (Zone 15), based on the North American Datum (NAD) of 1983.

RESULTS

Hydrogeology

Sources of ground water in the Atlantic area of Cass County include alluvial valley aquifers, glacial-drift aquifers, and the Dakota bedrock formation (USGS, 1992). The alluvial aquifers are primarily made up of deposits along existing river valleys. The nearest alluvial valley to Atlantic is the east fork of the Nishnabotna River and its tributary, Troublesome Creek. The aquifer underlying the valley is relatively shallow, with an average depth of 21 feet, and is comprised of fine-grained alluvial deposits. The thickness ranges from approximately two to 43 feet. Groundwater can also be obtained from shallow glacial-drift aquifers consisting of glacial and loess deposits over bedrock. In the Atlantic area, these

deposits range in thickness from 18 feet to 260 feet. Although the water table is usually shallow, production rates in the glacial-drift aquifers are often limited due to low soil permeability. Neither the alluvial nor the glacial drift aquifers are used for groundwater production in the Atlantic area.

The Town of Atlantic draws its water solely from the Dakota Sandstone Formation (Nishnabotna Member) of Cretaceous age, which formed in riverine environments approximately 100 million years ago. The Dakota is a fine- to coarse-grained sandstone, very poorly cemented (friable), part pebbly to conglomeratic, and locally interbedded with seams of clay (Iowa DNR, 1996). Secondary lithologies include chert-quartz gravel, conglomerate, and gray to variegated mudstone with some siderite pellets. The formation is approximately 40 to 60 feet thick in the Atlantic wellhead protection area, providing abundant pore space for groundwater storage. Within the wellhead protection area, the Dakota is confined above by clay-rich glacial till.

The aquifer is recharged by downward percolation through Pleistocene deposits and by lateral groundwater inflow from southwest Minnesota. Regional groundwater flow is from north to south and natural discharge from the aquifer occurs into the lower reaches of major rivers in the region. Locally, groundwater flows from south to north (the direction of PCE migration), which results from a combination of topography and groundwater pumping from the municipal well field.

Average hydraulic characteristics of the Dakota sandstone (i.e., in the wellhead protection area) are as follows (USGS, 1992):

- Transmissivity = 1,750 to 3,075 square feet per day
- Hydraulic conductivity = 35 to 60 feet per day
- Hydraulic gradient = 0.003 feet per feet

Below the Dakota is an aquiclude of impermeable, calcareous, gray-blue-red shales, with interbedded limestones, belonging to the Missourian Series of Pennsylvanian age. These shales are encountered at a depth of 85 to 90 feet bgs and are approximately 725 feet thick in the Atlantic area.

Municipal Well Field Data

- Eight municipal wells (Nos. 10 through 17) are located on the north side of a creek (Troublesome Creek), beyond the primary area of investigation (Figure 2).

- Wells No. 6 and No. 7 are located on the south side of the creek. Other wells had previously existed on the south side of the creek but have since been decommissioned.

- Well No 7 is contaminated with PCE (approximately 150 micrograms per liter [µg/L]) and is no longer used as a drinking water source. The well is pumped on a continual basis (95 to 100 gpm) for hydraulic control in an effort to prevent or limit the PCE plume from spreading to other wells within the well field. The water pumped from Well No. 7 is discharged to the city's POTW.

- Well No. 6, located approximately 910 feet northeast of Well No. 7, is also slightly contaminated with PCE (approximately 5µg/L or less), which signifies the overall width of the PCE contaminant plume. The well is still used as a drinking water well and is pumped approximately 15 to 20 hours per day at 300 to 350 gpm on average.

- For the nine active municipal wells, total depths range from approximately 75 to 98 feet bgs, with an average of 87 feet bgs (AMU well data). Pumping rates (yields) range from about 200 to 500

gpm and specific capacities range from about 10 to 30 gpm per foot (gpm/ft), with an average of 19 gpm/ft.

- Water from the nine active municipal wells is initially blended and then treated. Prior to distribution, the water is treated primarily with liquid chlorine, used to disinfect the water, and fluorosilicic acid (H_2SiF_6), for water fluoridation. Muriatic acid is additionally used for well maintenance and rehabilitation for removal of mineral scale. Apparently, polyphosphates (for silt and clay removal) are not being used for well maintenance and rehabilitation.

- The well field provides water to a population of approximately 7,200.

PCE was first detected in Well No. 7 in August 1982 at a concentration of 170 µg/L (Ecology & Environment, 1988). The following list shows chronological analytical results for PCE concentrations (in µg/L) detected in Well No. 7:

- August 1982 170
- September 1982 224
- May 1983 223
- August 1984 260
- January 1986 190
- March 1986 160
- June 1986 200
- June 1987 150
- May 2003 95
- July 2003 140

The above results suggest that PCE concentrations within the plume (i.e., at least in the vicinity of Well No. 7) have reached an equilibrium point and should not increase with time. In fact, it appears that concentrations may be slightly declining.

A representative from AMU indicated that Well No. 7 is in need of repair, as it appears to be pulling in sand from either the filter pack and/or the surrounding formation. The joint between the screen and casing has probably corroded. The well screen is positioned from approximately 46 to 83 feet bgs. Additionally, based on well data provided by AMU, the specific capacity of Well No. 7 has declined over time: from approximately 13.5 gpm/ft in 1942 (when the well was first installed) to approximately 3 gpm/ft at present. This suggests a problem with the well screen (i.e., clogging and/or degradation). Although acid is used to treat the well on a regular basis, these efforts have not restored the well to its original condition.

Drilling and Sampling

The locations of the six boreholes are illustrated in Figure 1. The drilling logs are attached in Appendix A. Based on the drilling logs, a generalized stratigraphic cross section (Figure 3) for the study area was developed to illustrate both vertical and horizontal changes in lithology. The cross section shows that a confining layer of silt and clay (averaging 20 feet in thickness) overlies a thin interval of water-bearing fine- to coarse-grained sand or sand and gravel. A thin seam of silt and clay (with sandy intervals around B-3) was also encountered in several boreholes beneath the sand and gravel. On average, the Dakota sandstone extends from approximately 28 to 75 feet bgs. In most of the boreholes, what appeared to be a weathered conglomerate (a dense, hard mixture of silt, clay, and gravel) was encountered beneath the Dakota. In the deepest borehole, B-1, drill cuttings suggest that weathered shale or mudstone exists

beneath a depth of 80 feet bgs, which is supported by geologic information for the area (USGS, 1992). The potentiometric groundwater surface of the Dakota sandstone (and overlying sands) ranged from approximately 15 to 18 feet bgs, averaging 16 feet bgs.

Groundwater sample data for the six exploratory boreholes are presented in Table 1. Analytical results for PCE and trichloroethene (TCE) are listed in the table. (TCE is a degradation product of PCE.) The laboratory analytical results are presented in Appendix B. Based on the overall objectives of the investigation, validation of the data was not requested by the EPA/ERT WAM.

Analytical results for water samples collected from the municipal wells are as follows:

- Well Nos. 10, 11, and 12: no detections above reporting limits
- Well No. 6: PCE = 1.34 µg/L (detected below reporting limits)
- Well No. 7 (three separate samples): PCE = 149 to 159 µg/L; TCE = non-detect to 1.42 µg/L

The current EPA drinking water standard (maximum contaminant level) for both PCE and TCE is 5 µg/L (EPA National Primary Drinking Water Standards).

Blended water collected from AMU's treatment plant showed no indications of PCE or TCE. However, four compounds (i.e., chloroform, bromodichloromethane, dibromochloromethane, and bromoform) were detected at very low concentrations (less than 5 µg/L). The four compounds, combined, are referred to as total trihalomethanes (TTHMs). The current EPA drinking water standard for total TTHMs is 80 µg/L (EPA National Primary Drinking Water Standards). TTHMs are formed along with other disinfection byproducts when chlorine or other disinfectants, used to control microbial contaminants in drinking water, react with naturally-occurring organic and inorganic matter in water.

Distribution of PCE and TCE in Groundwater

Concentrations of PCE and TCE detected in groundwater samples from the six exploratory boreholes are listed in Table 2. The boreholes are arranged from west to east (Figure 1), showing the distribution of PCE and TCE both vertically and laterally. Detected concentrations of TCE were relatively low compared to PCE. The highest concentration of TCE was detected in borehole B-1 (21.3 µg/L) between approximately 27 and 30 feet bgs. Very high concentrations of PCE (over 300 µg/L) were detected in boreholes B-2, B-4, and B-5 at depths exceeding 50 feet bgs.

To better visualize the distribution of PCE contamination in groundwater, an inverse-distance anisotropic algorithm in RockWorks™ (v.2004) was used to construct a 3-dimensional (3-D) model of the PCE data acquired from the six boreholes. A "section" program was then used to create a 2-D vertical profile or slice of the borehole PCE data, which was positioned along a path connecting all six boreholes. The resulting PCE profile is presented in Figure 4. Again, very high concentrations of PCE are noted around boreholes B-2, B-4, and B-5. In B-4, the highest concentrations of PCE occur near the bottom of the borehole (below 70 feet bgs), where the Dakota sandstone overlies weathered conglomerate of low or limited permeability (based on sample observations). The conglomerate may act as a confining or semi-confining layer for restricting or limiting downward migration of contaminants. (This will require further investigation.) Laterally, the PCE plume appears to have been defined to the west (around B-6) but not to the east (around B-5). As previously mentioned, the presence of PCE contamination in Well No. 6 signifies the overall width of the PCE plume and in fact, may roughly define the eastern boundary of the plume.

RECOMMENDATIONS

- Additional hydrogeologic investigation is required at the site to further define or verify the eastern extent of the PCE plume. The lateral extent of contamination, however, may preclude the installation of a PRB at the site. Groundwater quality in strata beneath the Dakota should also be investigated on a limited basis.

- An analytical or numerical groundwater model should be used to determine an optimal pumping rate for Well No. 7 for drawing the PCE plume further away from Well No. 6. The model may also reveal the need for an additional pumping well, possibly positioned at some location upgradient of Well No.6.

- A number of permanent monitor wells should be installed at the site to track the plume and assure that other municipal wells will not be impacted over time.

- Critical hydraulic parameters (e.g., transmissivity, storativity) for the Dakota sandstone should be further defined or verified by conducting a pumping test, using Well No. 7 as the pumping well.

- The screen in Well No. 7 should ultimately be repaired or replaced. If possible, the pumping rate should be slightly increased (i.e., greater than 100 gpm) to enhance plume capture.

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Tables

TABLE 1
Groundwater Sample Data
Atlantic Iowa Groundwater PCE
November 2005

Sample Location	Open Interval (feet-bgs)	Date	Pumping Rate (gpm)	Pumping Time (minutes)	Gallons Removed	Appearance	Analytical Results (µg/L)
B-1/30'	26.5 - 30	6/14/2005	5	20	100	slightly turbid	TCE: 21.3
B-1/50'	49 - 53.5	6/14/2005	5	15	75	slightly turbid	ND
B-1/70'	67 - 70	6/18/2005	5	25	125	turbid	PCE: 31.3
B-1/84'	70 - 87.5	6/18/2005	1.5	70	105	turbid	PCE: 7.41
B-2/30'	27 - 30	6/18/2005	3	35	105	fairly clear	PCE: 1.4 J, TCE: 11.1
B-2/50'	46.5 - 50	6/19/2005	5	15	75	slightly turbid	PCE: 144
B-2/60'	56.5 - 60	6/19/2005	6.5	25	163	slightly turbid	PCE: 370
B-2/70'	67 - 70	6/19/2005	4.8	25	120	turbid	PCE: 117, TCE: 3.2 J
B-2/75'	74 - 80	6/20/2005	1.5	20	30	very turbid, silty	PCE: 232, TCE: 1.73 J
B-3/20'	17 - 20.5	6/20/2005	1.5	20	30	clear	PCE: 5.7, TCE: 2.54 J
B-3/30'	26.5 - 30.5	6/20/2005	4.5	15	68	slightly turbid	PCE: 11.2, TCE: 4.95 J
B-3/40'	37 - 41	6/20/2005	2.8	22	62	very turbid, silty	PCE: 162, TCE: 2.38 J
B-3/50'	47 - 50	6/21/2005	3	15	45	slightly turbid	PCE: 275, TCE: 3.62 J
B-3/65'	63 - 65	6/21/2005	3	17	51	slightly turbid	PCE: 206, TCE: 1.28 J
B-3/70'	70 - 74	6/21/2005	3	25	75	slightly turbid	PCE: 234, TCE: 1.81 J
B-4/25'	23 - 25	6/22/2005	1.5	25	38	clear	PCE: 228, TCE: 7.57
B-4/35'	34 - 37	6/22/2005	3	20	60	turbid, silty	PCE: 71.9, TCE: 1.93 J
B-4/55'	53 - 55	6/22/2005	2.5	15	38	turbid	PCE: 76.9, TCE: 1.40 J
B-4/70'	70 - 75	6/23/2005	3.8	22	84	turbid	PCE: 392, TCE: 1.90 J
B-5/25'	22 - 24	6/23/2005	1.8	15	27	slightly turbid	PCE: 140, TCE: 4.34 J
B-5/40'	37 - 39	6/24/2005	3.5	20	70	clear	PCE: 219
B-5/55'	53 - 55	6/24/2005	4	20	80	clear	PCE: 446
B-5'60'	57 - 59	6/24/2005	4.5	15	68	fairly clear	PCE: 328
B-5/70'	70 - 76	6/24/2005	5	15	75	slightly turbid	PCE: 176
B-6/25'	23 - 25	6/25/2005	1.5	15	23	slightly turbid	PCE: 8.16, TCE: 7.51
B-6/40'	37.5 - 40	6/25/2005	3.5	15	53	clear	PCE: 4.25 J
B-6/55'	53 - 55	6/25/2005	3	15	45	turbid	PCE: 3.13 J
B-6/70'	70 - 78	6/26/2005	4.8	20	96	turbid	PCE: 1.86 J

bgs - below ground surface
gpm - gallons per minute
µg/L - micrograms per liter

PCE - tetrachloroethene
TCE - trichloroethene
ND: not detected above reporting limit
J: concentration below reporting limit

TABLE 2
Distribution of PCE and TCE in Groundwater
Atlantic Iowa Groundwater PCE
November 2005

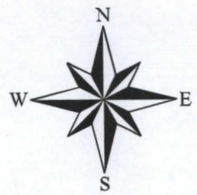
Depth (feet-bgs)	Boring B-6	Boring B-1	Boring B-3	Boring B-2	Boring B-4	Boring B-5
20			PCE: 5.7, TCE: 2.54 J			
25	PCE: 8.16, TCE: 7.51				PCE: 228, TCE: 7.57	PCE: 140, TCE: 4.34 J
30		TCE: 21.3	PCE: 11.2, TCE: 4.95 J	PCE: 1.4 J, TCE: 11.1		
35					PCE: 71.9, TCE: 1.93 J	
40	PCE: 4.25 J		PCE: 162, TCE: 2.38 J			PCE: 219
45						
50		ND	PCE: 275, TCE: 3.62 J	PCE: 144		
55	PCE: 3.13 J				PCE: 76.9, TCE: 1.40 J	PCE: 446
60				PCE: 370		PCE: 328
65			PCE: 206, TCE: 1.28 J			
70		PCE: 31.3		PCE: 117, TCE: 3.2 J	PCE: 392, TCE: 1.90 J	
75	PCE: 1.86 J	PCE: 7.41	PCE: 234, TCE: 1.81 J	PCE: 232, TCE: 1.73 J		PCE: 176
84						

bgs - below ground surface
PCE - tetrachloroethene
TCE - trichloroethene
ND: chlorinated solvents not detected above reporting limits
J: concentration below reporting limit

Concentrations given in micrograms per liter (µg/L)

Note: B-1/84 feet: borehole open from 70 to 87.5 feet

Figures



Map created using IOWA state DOQQs, and site survey GPS data collected in Lat, Lon, Decimal Degrees, WGS84

Map creation date: July 2005

Coordinate system: UTM
Zone: 15N
Datum: NAD83

Data: G:/ArcViewProjects/REAC4/00-136
MXD File: G:/ArcInfoprojects/EAC00136_Atlantic_Iowa/136_Boreholes_f1

LEGEND

- EXPLORATORY BOREHOLE
- MUNICIPAL WELL
- EMBANKMENT
- DITCH

150 0 150 300 Feet

U.S. EPA ENVIRONMENTAL RESPONSE TEAM
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
EP-C-04-032
W.A. # 0-136

FIGURE 1
SITE MAP AND
BOREHOLE LOCATIONS
ATLANTIC IOWA GROUNDWATER PCE
ATLANTIC, IA
JUNE 2005

300 0 300 600 Feet

Map created using USGS DOQQ and site survey GPS data.
GPS collected in Lat., Lon., Decimal Degrees, WGS84

Map Creation Date: 26July2005

Coordinate system:	UTM
Zone:	15N
Datum:	NAD83
Units:	Meters

N W E S Magnetic North

Legend

Municipal Wells

Data: g:\arcviewprojects\reac4\0-136
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Revision #: 002

U.S. EPA ENVIRONMENTAL RESPONSE TEAM
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
EP-C-04-032
W.A.# 0-136

FIGURE 2
MUNICIPAL WELL LOCATION MAP
ATLANTIC IOWA GROUNDWATER PCE
ATLANTIC, IA
JUNE 2005

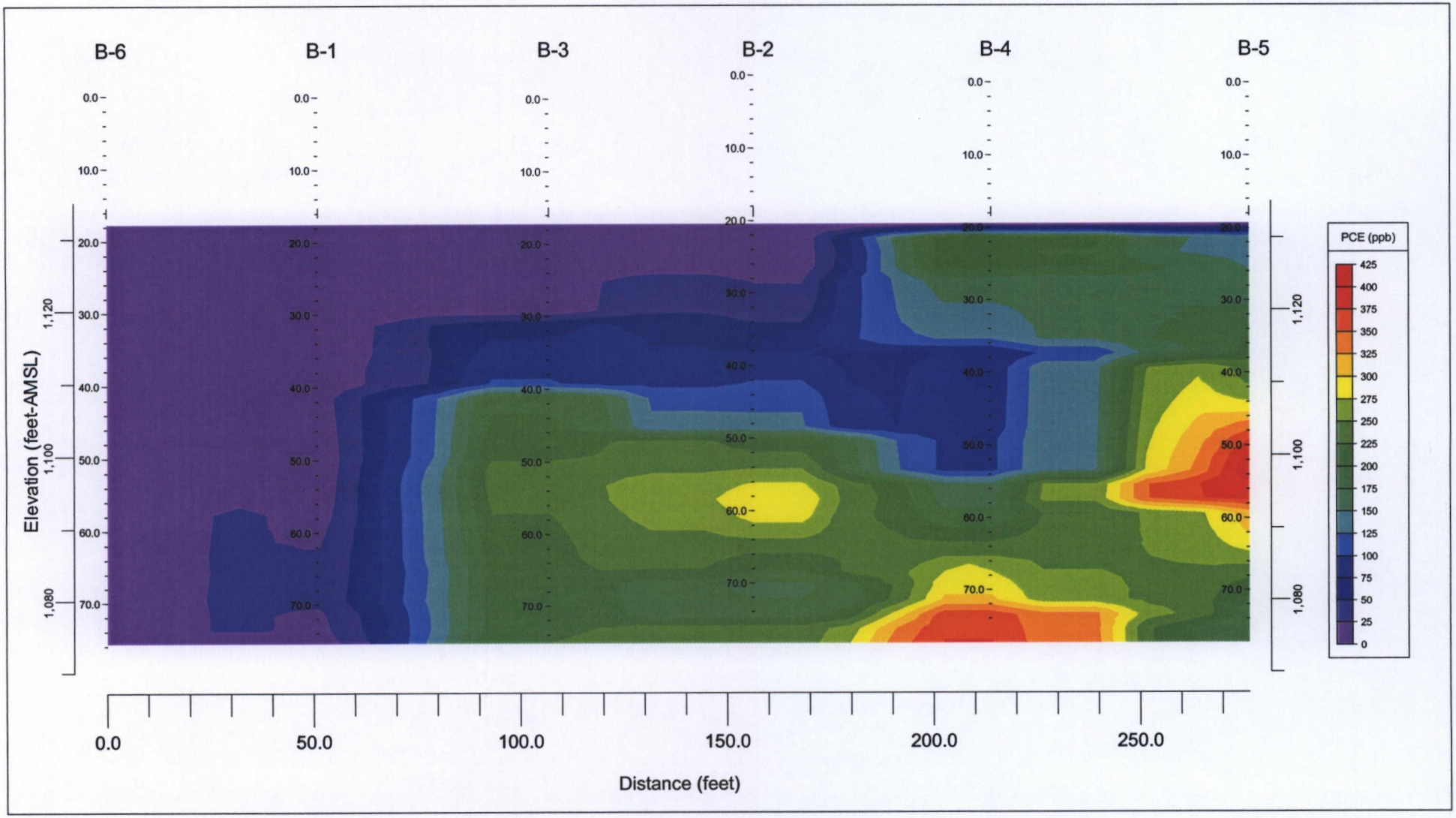

FIGURE 4
MODELED PCE CONCENTRATIONS IN GROUNDWATER
ATLANTIC IOWA GROUNDWATER PCE
ATLANTIC, IA
JUNE 2005

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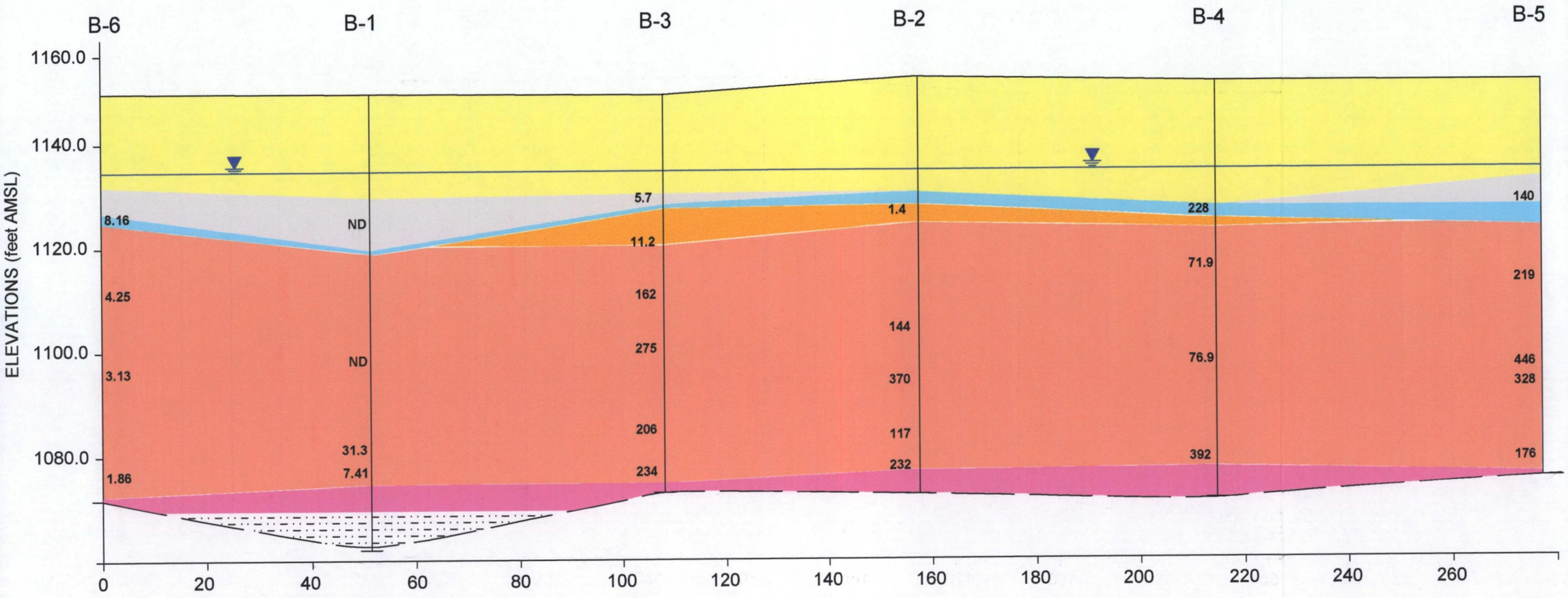

LEGEND

- SILT AND CLAY
- SAND (f/m/c)
- SAND AND GRAVEL
- SILT AND CLAY (W/SAND OR SANDY INTERVALS AROUND B-3)
- DAKOTA SANDSTONE
- WEATHERED SEDIMENTARY CONGLOMERATE
- WEATHERED SHALE / MUDSTONE
- POTENTIOMETRIC GROUNDWATER SURFACE OF THE DAKOTA
- 1.86 — PCE CONCENTRATION (µg/L or ppb)
- ND — NON-DETECT

SCALE:

20 ft

20 ft

U.S. EPA ENVIRONMENTAL RESPONSE TEAM
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
EP-C-04-032
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FIGURE 3
GENERALIZED STRATIGRAPHIC CROSS SECTION
ATLANTIC IOWA GROUNDWATER PCE
ATLANTIC, IA
JUNE 2005

10/29/05

REAC4/136/136_Cr_Section.dwg

Appendix A

APPENDIX A

Drilling Logs
Atlantic Iowa Groundwater PCE
Technical Memorandum
November 2005

Drilling Logs
Atlantic Iowa Groundwater PCE

Rig Type: Gus Pech Mite-E sonic rig, 10-foot stroke, 6-inch outer and 4-inch inner casings; mounted on an F-750 flatbed truck.

B-1 (6/14 – 6/18/05): Sonic drilling to 70 feet. Mud rotary drilling with 6-inch casing advance to 70 feet. Open-hole mud rotary (w/ 4-inch roller bit) to 87.5 feet. Note: Added approximately 550 gallons of potable water to the hole during drilling, between 0 and 50 feet.

10 – 20 feet	Dark to light brown soft silty CLAY, very plastic, damp to moist. Water at approximately 15 feet bgs.
20 – 30	Medium/coarse gray/brown SAND (20 - 22.5 ft). Dark brown silty CLAY (22.5 - 23.5 ft). Light gray fine/medium SAND (23.5 - 26 ft). Yellow/tan fine to medium SAND (26 - 30 ft).
30 – 40	Yellow/tan to light gray fine sugary SAND, saturated. Orange/yellow fine/medium SAND (37 - 38 ft).
40 – 50	Fine SAND, dense to very dense; hard drilling.
50 – 65	Yellow/tan fine SAND, little to some medium sand.
75 – 80	Drill cuttings: Angular fragments ranging in size from coarse sand to fine gravel (quartz, sandstone, and chert/flint) in a yellow-colored fine matrix; hard drilling.
80 – 85	Drill cuttings: Change in color to reddish-brown and lithology (shale/mudstone fragments).
85 – 87.5	Drill cuttings: Color changes to gray (shale/mudstone fragments).

B-2 (6/18 – 6/20/05): Sonic drilling to 80 feet. Added approximately 700 gallons of potable water to the hole during drilling, between 0 and 50 feet. No water used for drilling below 50 feet.

15 feet	Water encountered
10 – 22	Dark to light brown soft silty CLAY
22 – 24.5	SAND & GRAVEL
24.5 – 28	Silty CLAY
28 – 30	Yellow/tan to light gray clayey fine SAND
30 – 35	Yellow/tan to light gray clayey fine SAND to SAND & CLAY (stiff to hard).
35 – 45	Yellow/tan to light gray fine sugary SAND.

45 – 50	Yellow/tan to light gray fine sugary SAND, oxidized orange/red from 45 to 46 feet.
50 – 75.5	Yellow/tan to light gray fine sugary SAND; hard drilling from 60 to 70 feet (dense).
75.5 – 78	Yellow/tan to light gray CLAY & SILT, stiff, few seams of fine sand. [Weathered mudstone/shale?]
78 – 80	Red/brown CLAY & SILT, stiff.

B-3 (6/20 – 6/21/05): Sonic drilling to 76 feet. Added approximately 60 gallons of potable water to the hole during drilling, between 0 and 20 feet. No water used for drilling below 20 feet.

1.5 – 10 feet	Brown/gray SILT & CLAY, soft to firm, moist.
10 – 19	Brown/gray CLAY & SILT to silty CLAY, soft.
19 – 20	Light brown fine SAND, little amounts of silt and clay, wet.
20 – 21	Brown fine SAND, saturated.
21 – 22	Brown fine to coarse SAND & fine GRAVEL.
22 – 23	Light gray silty CLAY, soft.
23 – 25	Light gray fine SAND.
25 – 26	Yellow/tan to light gray clayey SILT to SILT & CLAY, firm to stiff.
26 – 28	Light gray fine SAND.
28 – 29	Light gray to yellow/tan clayey SILT.
29 – 30	Yellow/tan fine SAND.
30 – 35	Yellow/tan fine sugary SAND. SILT & CLAY seam (~ 0.8 feet) near top of sample core, stiff.
35 – 74.5	Yellow/tan fine sugary SAND, fairly uniform, trace of silt and very fine sand in areas.
74.5 – 76	Dense mixture of silt, clay, sand, and coarse gravel (up to 3-inches). [Weathered conglomerate?]

B-4 (6/22 – 6/23/05): Sonic drilling to 80 feet. Added approximately 60 gallons of potable water to the hole during drilling, between 0 and 20 feet. No water used for drilling below 20 feet.

0 – 5 feet	Dark brown clayey SILT & CLAY, firm to soft, damp to moist, roots 0- to 6-inches.
5 – 10	Dark brown SILT to clayey SILT, dry to damp.

10 – 15	Dark brown clayey SILT to SILT & CLAY, firm to stiff, moist.
15 – 17.5	Brown SILT & CLAY, firm, moist, some orange mottling.
17.5 – 20	Brown silty CLAY, very soft, plastic.
20 – 24	Silty CLAY, little fine to very fine sand, very soft, saturated.
24 – 26.4	Coarse SAND & fine GRAVEL, grains sub-angular to sub-rounded, trace to some silt and clay in areas.
26.4 – 28.2	Brown silty CLAY, soft, plastic.
28.2 – 35.5	Yellow/tan fine SAND, orange staining in areas, wet to saturated.
35.5 – 37.5	Yellow/tan to dark orange silty/clayey SAND.
37.5 – 39.5	Yellow/tan to dark orange clayey SILT to SILT & CLAY, little to some dark orange fine sand, stiff to hard, damp.
39.5 – 40.5	Dark orange fine SAND, trace of very fine sand, saturated. Pink/red massive quartz sandstone fragment (4-inches) at 39.5 feet.
40.5 – 41.5	Orange silty/clayey fine SAND.
41.5 – 45	Light gray clayey/silty fine SAND with alternating seams of light gray SILT & CLAY (up to 6-inches).
45 – 49.6	Yellow to orange fine SAND
49.6 – 51	Yellow/tan fine sugary SAND.
51 – 56	Fine sugary SAND, trace to little very fine sand and silt in areas, color changes from yellow to yellow/tan to orange, dense.
56 – 74	Yellow/tan fine sugary SAND, uniform, dense.
74 – 75	Yellow/tan mixture of silt, clay, sand, and fine to coarse sub-rounded to sub-angular gravel, dense/hard, damp to moist. Chert/flint nodules up to 2-inches in size. [Weathered conglomerate?]
75 – 80	Same as above but moist to wet. Colors vary: yellow, tan, orange, and red. Water present along coarse grain boundaries.

B-5 (6/23 – 6/24/05): Sonic drilling to 75 feet. Added approximately 60 gallons of potable water to the hole during drilling, between 0 and 20 feet. Added approximately 125 gallons of potable water to the hole during drilling, between 45 and 54 feet. No water used for drilling below 54 feet.

0 – 1 feet	Brown SILT, trace clay (topsoil), roots, dry.
1 – 18.5	Dark brown to light brown SILT & CLAY to silty CLAY, stiff to soft, very soft beyond 15 feet, dry to moist (moister with depth).
18.5 – 21.5	Brown fine SAND, fairly uniform, saturated.
21.5 – 22	Dark gray fine SAND.
22 – 23.5	Orange brown coarse/medium/fine SAND.
23.5 – 24	Dark orange coarse/medium/fine SAND (rust-colored).
24 – 28	Brown coarse/medium/fine SAND & fine/medium sub-angular to sub-rounded GRAVEL, little coarse gravel (up to 3.5 inches), trace silt. More coarse gravel occurs near 28 feet (pink/red quartzite, gray/green sandstone, and clear quartz).
28 – 39	Yellow tan fine SAND, uniform.
39 – 42.5	Yellow/tan fine SAND, little medium sand, trace of fine gravel.
42.5 – 44	Yellow fine/medium SAND, occasional orange silt banding with gray clayey seams.
44 – 49	Yellow medium/fine SAND, trace coarse sand and fine/medium gravel, few seams of dark yellow silt & clay with observed layering. Overall sand matrix is clayey in areas. Coarse/medium SAND near 49 feet with orange silt nodules.
49 – 59	Yellow to yellow/tan medium/fine SAND, trace to some coarse sand in areas, trace of fine gravel. Few intact yellow/tan sandstone fragments (friable) between 55 and 59 feet.
59 – 64	Yellow/tan fine sugary SAND, uniform.
64 – 66	Yellow/tan to dark gray (mixed) medium/coarse/fine SAND. Few intact friable sandstone fragments near 66 feet.
66 – 69	Yellow/tan to dark gray (mixed) fine/medium to fine SAND.
69 – 75.2	Yellow fine/medium to fine sugary SAND, some gray-colored sand near 75 feet. Few intact friable sandstone fragments near 75 feet.
75.2 – 76	Dense, hard mixture of silt, clay, sand, and fine to coarse gravel. [Weathered conglomerate?]

B-6 (6/25 – 6/26/05): Sonic drilling to 78 feet. Added approximately 80 gallons of potable water to the hole during drilling, between 0 and 20 feet. No water used for drilling below 20 feet.

10 – 18 feet	Dark to light brown soft silty CLAY, very plastic, damp to moist. Water at approximately 15.5 feet bgs.
18 – 23	Brown clayey medium/fine SAND, trace to little coarse sand and fine gravel, wet to saturated.
23 – 25	Orange coarse/medium/fine SAND & coarse sub-angular to sub-rounded GRAVEL (sandstone and quartz up to 1.5-inches), saturated.
25 – 35	Yellow/tan fine SAND, trace of medium sand in areas, trace of very fine sand and silt in areas, gray banding in few areas.
35 – 36	Fine to coarse (up to 2.5-inches) sub-angular to sub-rounded GRAVEL, little to some fine/medium sand.
36 – 40	Yellow/tan fine sugary SAND, trace medium sand.
40 – 55	Dark yellow to yellow/tan fine sugary SAND, few intact small sandstone (friable) fragments near 54 feet.
55 – 77.4	Yellow to yellow/tan fine sugary SAND, fairly uniform, few small areas colored gray to dark gray, trace of small sandstone fragments (friable).
77.4 – 78	Dense, hard mixture of yellow clay & silt with sand and fine to coarse gravel (including one chert/flint nodule). [Weathered conglomerate?]

Appendix B

APPENDIX B

Analytical Results
Atlantic Iowa Groundwater PCE
Technical Memorandum
November 2005

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136			
Sample # :	Water Blank A 061705-1	153	151	152
Location :		TB1	B1/30'	B1/50'
Collected :		6/15/05	6/14/05	6/14/05
Analyzed :	6/17/05	6/17/05	6/17/05	6/17/05
Injected :	1:04 PM	2:32 PM	3:10 PM	3:48 PM
File :	AV0868.D	AV0870.D	AV0871.D	AV0872.D
Dil. Fact. :	1	1	1	1
Unit :	µg/L	µg/L	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00	U	5.00
Acetone	U	20.0	U	20.0	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00
Chloroform	U	5.00	103	5.00	U	5.00	1.90 J	5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00	U	5.00
Benzene	U	5.00	U	5.00	U	5.00	U	5.00
Trichloroethene	U	5.00	U	5.00	21.3	5.00	U	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00
Bromodichloromethane	U	5.00	7.24	5.00	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00
Dibromochloromethane	U	5.00	3.06	5.00	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00	U	5.00	U	5.00
Toluene	U	5.00	U	5.00	1.31 J	5.00	1.58 J	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00	U	5.00
Tetrachloroethene	U	5.00	U	5.00	U	5.00	U	5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00	U	5.00	U	5.00
Styrene	U	5.00	U	5.00	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00

rv1699

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136				
Sample # :	Water Blank A 062105-1	161	155	157	154
Location :		TB2	B-2/30'	B-2/50'	B-1/70'
Collected :		6/20/05	6/18/05	6/19/05	6/18/05
Analyzed :	6/21/05	6/21/05	6/21/05	6/21/05	6/21/05
Injected :	1:10 PM	2:30 PM	3:08 PM	3:46 PM	4:25 PM
File :	AV0882.D	AV0884.D	AV0885.D	AV0886.D	AV0887.D
Dil. Fact. :	1	1	1	1	1
Unit :	µg/L	µg/L	µg/L	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Acetone	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroform	U	5.00	U	5.00	U	5.00	2.08 J	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Benzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichloroethene	U	5.00	U	5.00	11.1	5.00	U	5.00	U	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Toluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Tetrachloroethene	U	5.00	U	5.00	1.40 J	5.00	144	5.00	31.3	5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Styrene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00

rv1719

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136				
Sample # :	Water Blank A 062105-1	156	158	159	160
Location :		B-1/84'	B-2/60'	B-2/70'	B-2/75'
Collected :		6/18/05	6/19/05	6/19/05	6/20/05
Analyzed :	6/21/05	6/21/05	6/21/05	6/21/05	6/21/05
Injected :	1:10 PM	5:03 PM	5:42 PM	6:20 PM	6:59 PM
File :	AV0882.D	AV0888.D	AV0889.D	AV0890.D	AV0891.D
Dil. Fact. :	1	1	1	1	1
Unit :	µg/L	µg/L	µg/L	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Acetone	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	U	5.00	1.30 J	5.00	U	5.00	1.55 J	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroform	U	5.00	7.40	5.00	U	5.00	1.44 J	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Benzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichloroethene	U	5.00	U	5.00	U	5.00	3.20 J	5.00	1.73 J	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromodichloromethane	U	5.00	4.82 J	5.00	U	5.00	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromochloromethane	U	5.00	2.84 J	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Toluene	U	5.00	2.00 J	5.00	U	5.00	U	5.00	1.69 J	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Tetrachloroethene	U	5.00	7.41	5.00	370	5.00	117	5.00	232	5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Styrene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00

rv1720

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136				
Sample # :	Water Blank A 062205-1	172	174	175	162
Location :		TB3	No.7	Dup2	B-3/20'
Collected :		6/21/05	6/21/05	6/21/05	6/20/05
Analyzed :	6/22/05	6/22/05	6/22/05	6/22/05	6/22/05
Injected :	12:21 PM	1:43 PM	3:38 PM	4:16 PM	4:54 PM
File :	AV0901.D	AV0903.D	AV0906.D	AV0907.D	AV0908.D
Dil. Fact. :	1	1	1	1	1
Unit :	µg/L	µg/L	µg/L	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL	Conc.		RL
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Chloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Bromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Chloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Acetone	U	20.0	U	20.0	U	20.0	U	20.0	U		20.0
1,1-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Methyl-t-butyl Ether	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,1-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
2-Butanone	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Chloroform	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Benzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Trichloroethene	U	5.00	U	5.00	U	5.00	1.42 J	5.00	2.54	J	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Bromodichloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Dibromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Dibromochloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Bromoform	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
4-Methyl-2-pentanone	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Toluene	U	5.00	U	5.00	U	5.00	U	5.00	1.87	J	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Tetrachloroethene	U	5.00	U	5.00	159	5.00	149	5.00	5.70		5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0	U	10.0	U		10.0
o-Xylene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Styrene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Bromobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
Naphthalene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U		5.00

rv1721

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136				
Sample # :	Water Blank A 062205-1	163	164	165	166
Location :		Dup1	B-3/30'	B-3/40'	B-3/50'
Collected :		6/20/05	6/20/05	6/20/05	6/21/05
Analyzed :	6/22/05	6/22/05	6/22/05	6/22/05	6/22/05
Injected :	12:21 PM	5:32 PM	6:10 PM	6:48 PM	7:25 PM
File :	AV0901.D	AV0909.D	AV0910.D	AV0911 D	AV0912.D
Dil. Fact. :	1	1	1	1	1
Unit :	µg/L	µg/L	µg/L	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Acetone	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	U	5.00	U	5.00	1.31 J	5.00	3.16 J	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroform	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Benzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichloroethene	U	5.00	2.54 J	5.00	4.95 J	5.00	2.38 J	5.00	3.62 J	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Toluene	U	5.00	1.79 J	5.00	U	5.00	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Tetrachloroethene	U	5.00	5.03	5.00	11.2	5.00	162	5.00	275	5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Styrene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00

rv1722

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136		
Sample # :	Water Blank A 062205-1	173	176
Location :		B-3/65'	B-3/70'
Collected :		6/21/05	6/21/05
Analyzed :	6/22/05	6/22/05	6/22/05
Injected :	12:21 PM	8:04 PM	8:42 PM
File :	AV0901.D	AV0913.D	AV0914.D
Dil. Fact. :	1	1	1
Unit :	µg/L	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00
Acetone	U	20.0	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	1.74 J	5.00	1.66 J	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00
Chloroform	U	5.00	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00
Benzene	U	5.00	U	5.00	U	5.00
Trichloroethene	U	5.00	1.26	5.00	1.81 J	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00	U	5.00
Toluene	U	5.00	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00
Tetrachloroethene	U	5.00	206	5.00	234	5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00	U	5.00
Styrene	U	5.00	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00

rv1723

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,#0136				
Sample # :	Water Blank B 062205-1	167	168	169	170
Location :		TP blend	No.10	No.11	No.12
Collected :		6/21/05	6/21/05	6/21/05	6/21/05
Analyzed :	6/22/05	6/22/05	6/22/05	6/22/05	6/22/05
Injected :	5:10 PM	6:25 PM	7:03 PM	7:40 PM	8:17 PM
File :	BV1487.D	BV1489.D	BV1490.D	BV1491.D	BV1492.D
Dil. Fact. :	1	1	1	1	1
Unit :	µg/L	µg/L	µg/L	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Acetone	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroform	U	5.00	3.10 J	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Benzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromodichloromethane	U	5.00	4.75 J	5.00	U	5.00	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromochloromethane	U	5.00	4.77 J	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromoform	U	5.00	1.27 J	5.00	U	5.00	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Toluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Tetrachloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Styrene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00

rv1724

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project #	:	Atlantic Iowa,#0136	
Sample #	:	Water Blank B 062205-1	171
Location	:		No.6
Collected	:		6/21/05
Analyzed	:	6/22/05	6/22/05
Injected	:	5:10 PM	10:10 PM
File	:	BV1487.D	BV1495.D
Dil. Fact.	:	1	1
Unit	:	µg/L	µg/L

Compound	Conc.	RL	Conc.		RL
Dichlorodifluoromethane	U	5.00	U		5.00
Chloromethane	U	5.00	U		5.00
Vinyl Chloride	U	5.00	U		5.00
Bromomethane	U	5.00	U		5.00
Chloroethane	U	5.00	U		5.00
Trichlorofluoromethane	U	5.00	U		5.00
Acetone	U	20.0	U		20.0
1,1-Dichloroethene	U	5.00	U		5.00
Methylene Chloride	U	5.00	U		5.00
Carbon Disulfide	U	5.00	U		5.00
Methyl-t-butyl Ether	U	5.00	U		5.00
trans-1,2-Dichloroethene	U	5.00	U		5.00
1,1-Dichloroethane	U	5.00	U		5.00
2-Butanone	U	5.00	U		5.00
2,2-Dichloropropane	U	5.00	U		5.00
cis-1,2-Dichloroethene	U	5.00	U		5.00
Chloroform	U	5.00	U		5.00
1,1-Dichloropropene	U	5.00	U		5.00
1,2-Dichloroethane	U	5.00	U		5.00
1,1,1-Trichloroethane	U	5.00	U		5.00
Carbon Tetrachloride	U	5.00	U		5.00
Benzene	U	5.00	U		5.00
Trichloroethene	U	5.00	U		5.00
1,2-Dichloropropane	U	5.00	U		5.00
Bromodichloromethane	U	5.00	U		5.00
Dibromomethane	U	5.00	U		5.00
cis-1,3-Dichloropropene	U	5.00	U		5.00
trans-1,3-Dichloropropene	U	5.00	U		5.00
1,1,2-Trichloroethane	U	5.00	U		5.00
1,3-Dichloropropane	U	5.00	U		5.00
Dibromochloromethane	U	5.00	U		5.00
1,2-Dibromoethane	U	5.00	U		5.00
Bromoform	U	5.00	U		5.00
4-Methyl-2-pentanone	U	5.00	U		5.00
Toluene	U	5.00	U		5.00
2-Hexanone	U	5.00	U		5.00
Tetrachloroethene	U	5.00	1.34	J	5.00
Chlorobenzene	U	5.00	U		5.00
1,1,1,2-Tetrachloroethane	U	5.00	U		5.00
Ethylbenzene	U	5.00	U		5.00
p&m-Xylene	U	10.0	U		10.0
o-Xylene	U	5.00	U		5.00
Styrene	U	5.00	U		5.00
Isopropylbenzene	U	5.00	U		5.00
1,1,2,2-Tetrachloroethane	U	5.00	U		5.00
1,2,3-Trichloropropane	U	5.00	U		5.00
n-Propylbenzene	U	5.00	U		5.00
Bromobenzene	U	5.00	U		5.00
1,3,5-Trimethylbenzene	U	5.00	U		5.00
2-Chlorotoluene	U	5.00	U		5.00
4-Chlorotoluene	U	5.00	U		5.00
tert-Butylbenzene	U	5.00	U		5.00
1,2,4-Trimethylbenzene	U	5.00	U		5.00
sec-Butylbenzene	U	5.00	U		5.00
p-Isopropyltoluene	U	5.00	U		5.00
1,3-Dichlorobenzene	U	5.00	U		5.00
1,4-Dichlorobenzene	U	5.00	U		5.00
n-Butylbenzene	U	5.00	U		5.00
1,2-Dichlorobenzene	U	5.00	U		5.00
1,2-Dibromo-3-chloropropane	U	5.00	U		5.00
1,2,4-Trichlorobenzene	U	5.00	U		5.00
Hexachlorobutadiene	U	5.00	U		5.00
Naphthalene	U	5.00	U		5.00
1,2,3-Trichlorobenzene	U	5.00	U		5.00

rv1725

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136				
Sample # :	Water Blank A 062405-1	181	177	178	179
Location :		TB4	B-4/25'	B-4/35'	B-4/55'
Collected :		6/23/05	6/22/05	6/22/05	6/22/05
Analyzed :	6/24/05	6/24/05	6/24/05	6/24/05	6/24/05
Injected :	11:15 AM	12:37 PM	1:15 PM	1.54 PM	2:32 PM
File :	AV0931.D	AV0933.D	AV0934.D	AV0935.D	AV0936.D
Dil. Fact. :	1	1	1	1	1
Unit :	µg/L	µg/L	µg/L	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Acetone	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroform	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Benzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichloroethene	U	5.00	U	5.00	7.57	5.00	1.93 J	5.00	1.40 J	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Toluene	U	5.00	U	5.00	1.40 J	5.00	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Tetrachloroethene	U	5.00	U	5.00	228	5.00	71.9	5.00	76.9	5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Styrene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00

rv1727

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136	
Sample # :	Water Blank A 062405-1	180
Location :		B-4/70'
Collected :		6/23/05
Analyzed :	6/24/05	6/24/05
Injected :	11:15 AM	3:11 PM
File :	AV0931.D	AV0937.D
Dil Fact. :	1	1
Unit :	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00
Acetone	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00
Chloroform	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00
Benzene	U	5.00	U	5.00
Trichloroethene	U	5.00	190	5.00
1,2-Dichloropropane	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00
Toluene	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00
Tetrachloroethene	U	5.00	392	5.00
Chlorobenzene	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00
Styrene	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00

rv1728

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136				
Sample # :	Water Blank A 062805-1	192	182	183	187
Location :		TB5	B-5/25'	B-5/40'	Dup3
Collected :		6/26/05	6/23/05	6/24/05	6/24/05
Analyzed :	6/28/05	6/28/05	6/28/05	6/28/05	6/28/05
Injected :	11:40 AM	1:01 PM	1:38 PM	2:17 PM	6:07 PM
File :	AV0947.D	AV0949.D	AV0950.D	AV0951.D	AV0957.D
Dil. Fact. :	1	1	1	1	1
Unit :	µg/L	µg/L	µg/L	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Acetone	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroform	U	5.00	U	5.00	U	5.00	1.76 J	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Benzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichloroethene	U	5.00	U	5.00	4.34 J	5.00	U	5.00	U	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Toluene	U	5.00	U	5.00	1.43 J	5.00	2.39 J	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Tetrachloroethene	U	5.00	U	5.00	140	5.00	219	10.0	170	5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Styrene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00

rv1742

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136				
Sample # :	Water Blank A 062805-1	188	189	190	191
Location :		B-6/25'	B-6/40'	B-6/55'	B-6/70'
Collected :		6/25/05	6/25/05	6/25/05	6/26/05
Analyzed :	6/28/05	6/28/05	6/28/05	6/28/05	6/28/05
Injected :	11:40 AM	6:45 PM	7:23 PM	8:01 PM	8:39 PM
File :	AV0947.D	AV0958.D	AV0959.D	AV0960.D	AV0961.D
Dil. Fact. :	1	1	1	1	1
Unit :	µg/L	µg/L	µg/L	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Acetone	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Chloroform	U	5.00	U	5.00	4.23 J	5.00	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Benzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Trichloroethene	U	5.00	7.51	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Toluene	U	5.00	2.15 J	5.00	U	5.00	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Tetrachloroethene	U	5.00	8.16	5.00	4.25 J	5.00	3.13 J	5.00	1.86 J	5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Styrene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00

rv1743

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136	
Sample # :	Water Blank A 062805-1	193
Location :		No.7b
Collected :		6/26/05
Analyzed :	6/28/05	6/28/05
Injected :	11:40 AM	9:17 PM
File :	AV0947.D	AV0962.D
Dil. Fact. :	1	1
Unit :	µg/L	µg/L

Compound	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00
Acetone	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00
Methylene Chloride	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00
Methyl-t-butyl Ether	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	U	5.00
Chloroform	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00
Benzene	U	5.00	U	5.00
Trichloroethene	U	5.00	1.40	5.00
1,2-Dichloropropane	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00
4-Methyl-2-pentanone	U	5.00	U	5.00
Toluene	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00
Tetrachloroethene	U	5.00	155	5.00
Chlorobenzene	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00
Styrene	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00
1,2-Dibromo-3-chloropropane	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00

rv1744

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected

TABLE 1
VOLATILE ORGANIC COMPOUND ANALYSIS

Project # :	Atlantic Iowa,0-136				
Sample # :	Water Blank A 063005-1	184	185	186	
Location :		B-5/55'	B-5/60'	B-5/70'	
Collected :		6/24/05	6/24/05	6/24/05	
Analyzed :	6/30/05	6/30/05	6/30/05	6/30/05	
Injected :	5:51 PM	9:06 PM	9:44 PM	10:22 PM	
File :	AV1002.D	AV1007.D	AV1008.D	AV1009.D	
Dil. Fact. :	1	5	5	2	
Unit :	µg/L	µg/L	µg/L	µg/L	

Compound	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Dichlorodifluoromethane	U	5.00	U	25.0	U	25.0	U	10.0
Chloromethane	U	5.00	U	25.0	U	25.0	U	10.0
Vinyl Chloride	U	5.00	U	25.0	U	25.0	U	10.0
Bromomethane	U	5.00	U	25.0	U	25.0	U	10.0
Chloroethane	U	5.00	U	25.0	U	25.0	U	10.0
Trichlorofluoromethane	U	5.00	U	25.0	U	25.0	U	10.0
Acetone	U	20.0	U	100	U	100	U	40.0
1,1-Dichloroethene	U	5.00	U	25.0	U	25.0	U	10.0
Methylene Chloride	U	5.00	U	25.0	U	25.0	U	10.0
Carbon Disulfide	U	5.00	U	25.0	U	25.0	U	10.0
Methyl-t-butyl Ether	U	5.00	U	25.0	U	25.0	U	10.0
trans-1,2-Dichloroethene	U	5.00	U	25.0	U	25.0	U	10.0
1,1-Dichloroethane	U	5.00	U	25.0	U	25.0	U	10.0
2-Butanone	U	5.00	U	25.0	U	25.0	U	10.0
2,2-Dichloropropane	U	5.00	U	25.0	U	25.0	U	10.0
cis-1,2-Dichloroethene	U	5.00	U	25.0	U	25.0	U	10.0
Chloroform	U	5.00	U	25.0	U	25.0	U	10.0
1,1-Dichloropropene	U	5.00	U	25.0	U	25.0	U	10.0
1,2-Dichloroethane	U	5.00	U	25.0	U	25.0	U	10.0
1,1,1-Trichloroethane	U	5.00	U	25.0	U	25.0	U	10.0
Carbon Tetrachloride	U	5.00	U	25.0	U	25.0	U	10.0
Benzene	U	5.00	U	25.0	U	25.0	U	10.0
Trichloroethene	U	5.00	U	25.0	U	25.0	U	10.0
1,2-Dichloropropane	U	5.00	U	25.0	U	25.0	U	10.0
Bromodichloromethane	U	5.00	U	25.0	U	25.0	U	10.0
Dibromomethane	U	5.00	U	25.0	U	25.0	U	10.0
cis-1,3-Dichloropropene	U	5.00	U	25.0	U	25.0	U	10.0
trans-1,3-Dichloropropene	U	5.00	U	25.0	U	25.0	U	10.0
1,1,2-Trichloroethane	U	5.00	U	25.0	U	25.0	U	10.0
1,3-Dichloropropane	U	5.00	U	25.0	U	25.0	U	10.0
Dibromochloromethane	U	5.00	U	25.0	U	25.0	U	10.0
1,2-Dibromoethane	U	5.00	U	25.0	U	25.0	U	10.0
Bromoform	U	5.00	U	25.0	U	25.0	U	10.0
4-Methyl-2-pentanone	U	5.00	U	25.0	U	25.0	U	10.0
Toluene	U	5.00	U	25.0	U	25.0	U	10.0
2-Hexanone	U	5.00	U	25.0	U	25.0	U	10.0
Tetrachloroethene	U	5.00	446	25.0	328	25.0	176	10.0
Chlorobenzene	U	5.00	U	25.0	U	25.0	U	10.0
1,1,1,2-Tetrachloroethane	U	5.00	U	25.0	U	25.0	U	10.0
Ethylbenzene	U	5.00	U	25.0	U	25.0	U	10.0
p&m-Xylene	U	10.0	U	50.0	U	50.0	U	20.0
o-Xylene	U	5.00	U	25.0	U	25.0	U	10.0
Styrene	U	5.00	U	25.0	U	25.0	U	10.0
Isopropylbenzene	U	5.00	U	25.0	U	25.0	U	10.0
1,1,2,2-Tetrachloroethane	U	5.00	U	25.0	U	25.0	U	10.0
1,2,3-Trichloropropane	U	5.00	U	25.0	U	25.0	U	10.0
n-Propylbenzene	U	5.00	U	25.0	U	25.0	U	10.0
Bromobenzene	U	5.00	U	25.0	U	25.0	U	10.0
1,3,5-Trimethylbenzene	U	5.00	U	25.0	U	25.0	U	10.0
2-Chlorotoluene	U	5.00	U	25.0	U	25.0	U	10.0
4-Chlorotoluene	U	5.00	U	25.0	U	25.0	U	10.0
tert-Butylbenzene	U	5.00	U	25.0	U	25.0	U	10.0
1,2,4-Trimethylbenzene	U	5.00	U	25.0	U	25.0	U	10.0
sec-Butylbenzene	U	5.00	U	25.0	U	25.0	U	10.0
p-Isopropyltoluene	U	5.00	U	25.0	U	25.0	U	10.0
1,3-Dichlorobenzene	U	5.00	U	25.0	U	25.0	U	10.0
1,4-Dichlorobenzene	U	5.00	U	25.0	U	25.0	U	10.0
n-Butylbenzene	U	5.00	U	25.0	U	25.0	U	10.0
1,2-Dichlorobenzene	U	5.00	U	25.0	U	25.0	U	10.0
1,2-Dibromo-3-chloropropane	U	5.00	U	25.0	U	25.0	U	10.0
1,2,4-Trichlorobenzene	U	5.00	U	25.0	U	25.0	U	10.0
Hexachlorobutadiene	U	5.00	U	25.0	U	25.0	U	10.0
Naphthalene	U	5.00	U	25.0	U	25.0	U	10.0
1,2,3-Trichlorobenzene	U	5.00	U	25.0	U	25.0	U	10.0

rv1745

B Indicates compound is present in Blank
J Indicates below Reporting Limit
U Indicates compound Not Detected